

REMARKS

Pursuant to the present amendment, claims 1, 11, and 15 have been amended, claims 6 and 16 have been canceled and new claims 21-22 have been added. Thus, claims 1-5, 7-15, and 17-22 are pending in the present application. No new matter has been introduced by way of the present amendment. Reconsideration of the present application is respectfully requested in view of the amendments and arguments set forth herein.

Claims 1 and 11 were amended to include features of dependent claims 6 and 16, respectively. Claim 15 was amended to correct an error in its dependency.

In the Office Action, claims 1-6 and 11-16 were rejected under 35 U.S.C. § 102 as allegedly being anticipated by U.S. Patent No. 6,348,736 (McGahay). Claims 7-10 and 17-20 were rejected under 35 U.S.C. § 103 as allegedly being obvious over McGahay in view of U.S. Patent Publication No. 2002/0090822 (Jiang). Applicants respectfully traverse the Examiner's rejections.

The invention, as set forth in independent claims 1 and 11 includes, among other things, the general features of forming a low-k dielectric layer over a substrate, heat treating the substrate to promote out-gassing of volatile materials, and converting an upper portion of the low-k dielectric layer into a protective dielectric to form a sacrificial cap layer after heat treating the substrate. In originally rejecting claim 6 and 16, the Office Action asserts that McGahay teaches these features.

To the contrary, McGahay fails to teach or suggest heat treating the substrate to promote out-gassing prior to forming the sacrificial cap layer. McGahay does not mention a separate heating step prior to the formation of the cap layer 16, only that the SSQ dielectric layer is exposed to an oxygen containing plasma. Applicants include distinct out-gassing and cap layer

formation steps. McGahay only mentions a cap layer forming step. McGahay does not mention heating the substrate to provide an out-gassing interval. Accordingly, the process of McGahay results in out-gassing only during the formation of the cap layer. Any incidental heating that may occur prior to introduction of the oxygen plasma does not equate to a separate heat treatment step to promote out-gassing.

As the Examiner well knows, an anticipating reference by definition must disclose every limitation of the rejected claim in the same relationship to one another as set forth in the claim. *In re Bond*, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990). To the extent the Examiner relies on principles of inherency in making the anticipation rejections in the Office Action, inherency requires that the asserted proposition necessarily flow from the disclosure. *In re Oelrich*, 212 U.S.P.Q. 323, 326 (C.C.P.A. 1981); *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1463-64 (Bd. Pat. App. & Int. 1990); *Ex parte Skinner*, 2 U.S.P.Q.2d 1788, 1789 (Bd. Pat. App. & Int. 1987); *In re King*, 231 U.S.P.Q. 136, 138 (Fed. Cir. 1986). It is not enough that a reference could have, should have, or would have been used as the claimed invention. “The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *Oelrich*, at 326, quoting *Hansgirk v. Kemmer*, 40 U.S.P.Q. 665, 667 (C.C.P.A. 1939); *In re Rijckaert*, 28 U.S.P.Q.2d 1955, 1957 (Fed. Cir. 1993), quoting *Oelrich*, at 326; see also *Skinner*, at 1789. “Inherency ... may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *Skinner*, at 1789, citing *Oelrich*. Where anticipation is found through inherency, the Office’s burden of establishing prima facie anticipation includes the burden of providing “...some evidence or scientific reasoning to establish the reasonableness of the examiner’s belief that the functional limitation is an inherent characteristic of the prior art.” *Skinner* at 1789.

For these reasons McGahay fails to teach or suggest heat treating the substrate to promote out-gassing of volatile materials and converting an upper portion of the low-k dielectric layer into a protective dielectric to form a sacrificial cap layer after heat treating the substrate. Accordingly, claims 1, 11, and all claims depending therefrom are allowable. Applicants respectfully request the rejection of these claims be withdrawn.

Jiang fails to correct the defects identified above with respect to McGahay. Specifically, Jiang also teaches a cap layer formation step without a preceding heat treatment out-gassing step. Accordingly, the combination of McGahay also fails to teach or suggest the features of the claimed subject matter.

Newly added claims 21 and 22 include additional features not taught or suggested by McGahay and/or Jiang.

For at least the aforementioned reasons, it is respectfully submitted that all pending claims are in condition for immediate allowance. The Examiner is invited to contact the undersigned attorney at (713) 934-4070 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

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